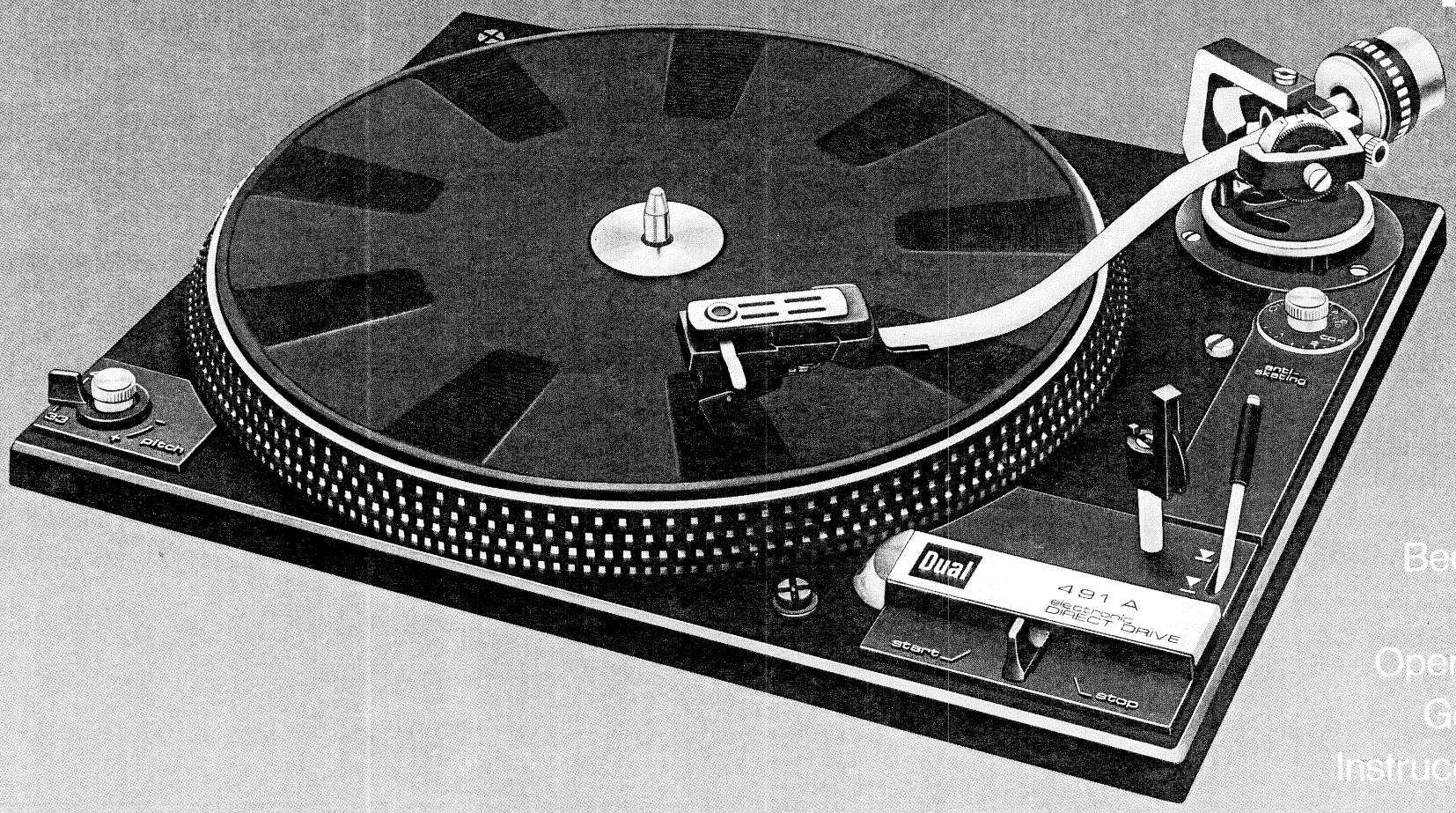
Dual

491A



Bedienungsanleitung
Notice d'emploi
Operating Instructions
Gebruiksaanwijzing
Instrucciones de manejo
Bruksanvisning
Istruzioni per l'uso

Sehr geehrter Schallplattenfreund

die Bedienung Ihres neuen Plattenspielers ist sehr einfach. Trotzdem bitten wir, diese Anleitung zu lesen, bevor Sie das Gerät in Betrieb nehmen.
Die für die erstmalige Inbetriebnahme notwendigen Hinweise, sowie Erläuterungen zur Bedienung Ihres Gerätes finden Sie auf den Seiten 5 und 6. Eine Gesamtabbildung mit Kurzbeschreibung aller Bedienungselemente finden Sie auf den ausklappbaren Umschlagseiten.
Wir wünschen Ihnen nun viel Freude mit Ihrem Dual 491 A.

Dear Music Lover

operating your new automatic turntable is very simple.
However, you should read the instructions carefully before you operate the turntable for the first time. On pages 9 and 10 you will find detailed instructions for the operation of your unit. The first page is flapped and you will find a brief description of all control elements.
Good listening with your Dual 491 A.

Estimado aficionado a los discos

el manejo de su nuevo tocadiscos es muy facil. A pesar de ello le recomendamos leer atentamente estas instrucciones antes de poner en marcha el aparato.
Las indicaciones generales para poner en marcha el tocadiscos por primera vez, así como observaciones para el manejo del mismo las encontrará en las páginas 13 y 14. Una vista general del aparato con definiciones resumidas de todos los elementos de mando la encontrará abriendo la hoja plegable.
Le deseamos mucha satisfación con su nuevo Dual 491 A.

Gentile amico discofilo

l'uso del Suo nuovo giradischi è molto semplice. Le consigliamo ugualmente di leggere queste istruzioni prima di mettere in funzione l'apparecchio.
Gli avvertimenti per la prima messa in servizio e le spiegazioni per l'uso dell'apparecchio si trovano alle pagine 17 e 18. Nell'interno della copertina ripiegabile sono raffigurati e brevemente descritti tutti gli elementi di manovra.
Ora Le auguriamo che il Dual 491 A sia per Lei sorgente di molte soddisfazioni.

Cher ami discophile

l'utilisation de votre nouvelle platine Dual est très simple. Toutefois, nous vous prions de lire cette notice d'emploi, avant de mettre votre platine en marche.
Vous trouverez pages 7 et 8 des informations nécessaires pour la première mise en marche ainsi que des renseignements sur le fonctionnement de l'appareil. Une illustration de la platine ainsi qu'une description de tous les éléments de commande sont indiqués sur les pages de couverture qui sont à rabattre.
Nous vous souhaitons beaucoup de joie avec votre platine Dual 491 A.

Geachte grammofoonplatenliefhebber

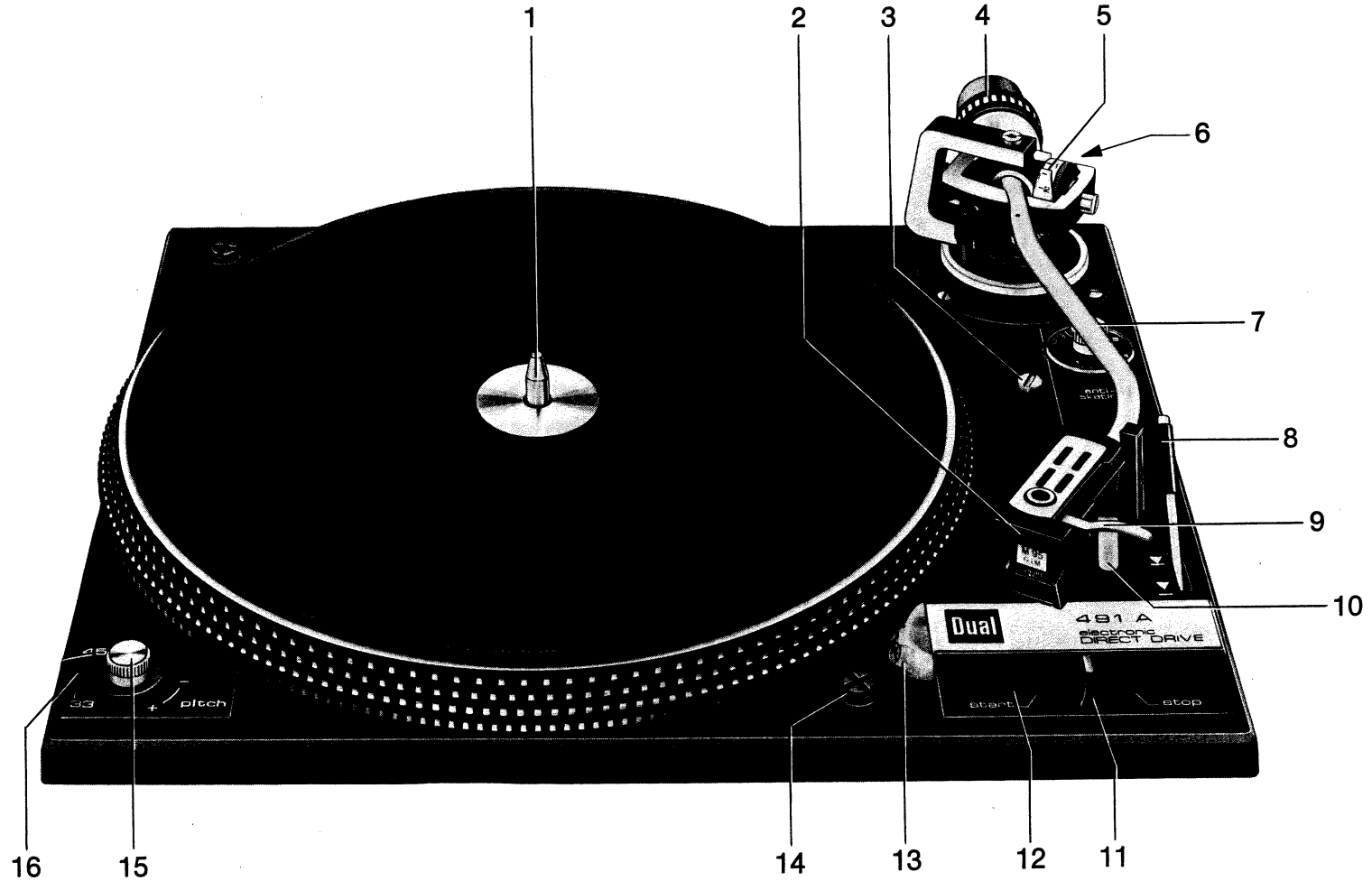
de bediening van uw nieuwe platenspeler is zeer eenvoudig. Toch verzoeken wij u, deze gebruiksaanwijzing aandachtig door te nemen, alvorens u het apparaat in gebruik neemt.
De voor de eerste in gebruikname benodigde aanwijzingen vindt u op de pagina's 11 en 12. Een totaal-overzicht met korte beschrijving van alle bedieningselementen vindt u op de uitklapbare pagina.
Wij wensen u veel plezier met uw Dual 491 A.

Ärade kunder

Er nya skivspelare är mycket enkel att sköta. Trots detta vill vi gärna be Er läsa igenom denna bruksanvisning innan Ni spelar Er första skiva.
På sidorna 15 och 16 finner Ni en kortfattad beskrivning av Er skivspelare och på den utvikbara sidan en översiktsbild med hänvisningar.
Vi önskar Er lycka till med Er nya Dual 491 A.

Dual

491 A



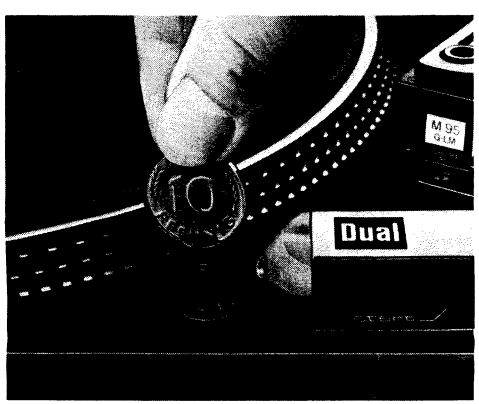


Fig. 1

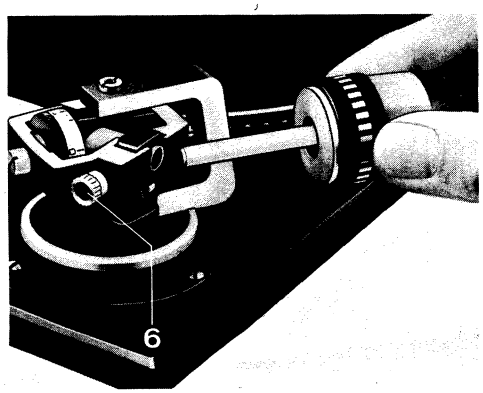


Fig. 2

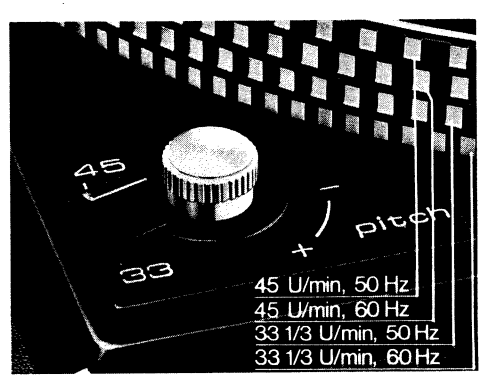


Fig. 3

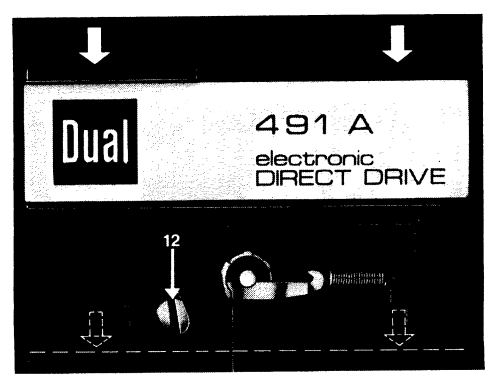


Fig. 4

Die Bedienung

(1) Motorachse für Schallplatten-zentrierung
(2) Tonabnehmerkopf (Systemträger)
(3) Justierschraube für Tonarmlift
(4) Tonarm-Balancegewicht
(5) Tonarmauflagekraft-Einstellung
(6) Feststellschraube für Tonarm-Balancegewicht
(7) Antiskating-Einstellung
(8) Tonarmlift
(9) Tonarmgriff/ Tonabnehmerkopf-Verriegelung
(10) Tonarmstütze mit Tonarmverriegelung
(11) Steuertaste für "start" und "stop"
(12) Justierschraube für Tonarmaufsetzpunkt (unter der Zierleiste)
(13) Leuchtstroboskop
(14) Transportsicherungsschraube
(15) Tonhöhenabstimmung
(16) Plattentellerdrehzahl-Einstellung

Commandes de l'appareil

(1) Axe du moteur pour le centrage des disques
(2) Cellule (porte-cellule)
(3) Vis de réglage du lift du bras
(4) Contrepoids
(5) Réglage de la force d'appui
(6) Vis de blocage pour le contrepoids
(7) Réglage de l'antiskating
(8) Lève-bras
(9) Poignée du bras de lecture/ verrouillage de la tête de lecture
(10) Support du bras avec verrouillage du bras de lecture
(11) Manette de commande pour „start" et „stop"
(12) Vis de réglage du point de pose du bras (sous la réglette décorative)
(13) Stroboscope à lampe
(14) Vis de sécurité pour le transport
(15) Réglage de la hauteur du son
(16) Réglage de la vitesse

Operation

(1) Motor shaft/record spindle
(2) Cartridge holder
(3) Cue control height adjustment
(4) Tonearm counterbalance
(5) Stylus pressure setting
(6) Set screw for tonearm counterbalance
(7) Anti-skating setting
(8) Cue-control
(9) Tonearm lift/cartridge holder lock
(10) Tonearm post with tonearm lock
(11) Automatic start-stop switch
(12) Tonearm set-down adjustment (below decorating cover)
(13) Illuminated strobe
(14) Transport safety (hold down) screw
(15) Pitch control
(16) Speed selector

Bediening

(1) Motoras en centrering grammofoonplaat
(2) Systeemhouder
(3) Instelschroef voor toonarmlift
(4) Contragewicht
(5) Naaldruk instelling
(6) Vergrendeling contra-gewicht
(7) Anti-skating instelling
(8) Toonarmlift
(9) Handgreep van de toonarm/ vergrendeling toonkophouder
(10) Toonarmsteun met toonarmvergrendeling
(11) Start/stop toets
(12) Instelschroef voor opzetpunt toonarm (onder de sierlijst)
(13) Verlichte stroboscoop
(14) Transportbeveiligingsschroeven
(15) Fijnregeling toerental
(16) Toerentalinstelling platenspeler

El manejo

(1) Eje del motor para el centrado de discos
(2) Cabezal fonocaptor (Portacápsulas)
(3) Tornillo de ajuste para dispositivo de elevación/descenso
(4) Contrapeso del brazo con antiresonador doble
(5) Ajuste de la fuerza de apoyo del brazo
(6) Tornillo de fijación para el contrapeso equilibrador
(7) Ajuste de la compensación del empuje lateral
(8) Dispositivo de elevación/descenso del brazo
(9) Asídero del brazo, bloqueo del cabezal fonocaptor
(10) Soporte del brazo fonocaptor y bloqueo del brazo
(11) Tecla de mando para „start" y „stop"
(12) Tornillo de ajuste para punto de descenso del brazo (bajo la moldura)
(13) Estroboscópio luminoso
(14) Tornillo asegurador para transporte
(15) Control de altura tonal
(16) Ajuste del número de revoluciones del plato giradiscos

Beskrivning

(1) Motoraxel för skivcentrering
(2) Monteringsbrygga med pick-up
(3) Justerskruv för tonarmsnedlägget
(4) Motvikt med 2 x antiresonator (resonansdämpare)
(5) Inställningsratt för nåltryckskraften
(6) Låsskruv för motvikt
(7) Antiskating-inställning
(8) Tonarmsnedlägg
(9) Tonarmsgrepp/pick-up spärr
(10) Tonarmsstöd med tonarmsspärr
(11) Start/stop-vred
(12) Inställningsskruv för tonarmens nedläggningspunkt (ta bort prydnadslisten)
(13) Belyst stroboskop
(14) Skruv för transportsäkring
(15) Tonhöjdskontroll (pitch)
(16) Varvtalsomkopplare

I comandi

(1) Asse del motore, centradisco
(2) Testina (portacellula)
(3) Vite di regolazione per il dispositivo sollevabraccio
(4) Contrappeso con "2 x antirisonatore"
(5) Regolazione della presione di lettura
(6) Vite di fissaggio del contrappeso
(7) Regolazione Antiskating
(8) Sollevabraccio
(9) Levetta fissaggio testina/alzabraccio
(10) Supporto braccio con fermabraccio
(11) Leva di comando
(12) Vite di regolazione per il punto di discesa del braccio (sotto il listello decorativo)
(13) Stroboscopio luminoso
(14) Vite di fissaggio per il transporto
(15) Regolazione fine della velocità
(16) Leva del cambio di velocità

ENGLISH

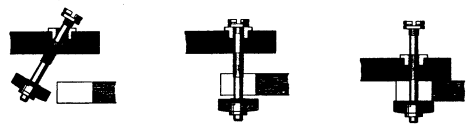
Unpacking and Installation

Please also note if the turntable is part of a compact unit or a console follow the instructions of the latter manufacturer.

Remove all transport protection information sheets and the packing material from the turntable. Please read all notes before removal.

Remove the safety screw of the turntable (marked by a red stripe) and loosen the transit safety screws (Fig. 1) by turning them clockwise until they slide downward (about 15 mm) releasing the chassis from the base.

Remove the securing pads between the chassis and the platter. Then continue turning the safety screws clockwise to tighten the screws. The turntable is now in spring-supported position required for play position (Fig. B).



A B C

Take the tonearm counterbalance out of its Styrofoam insert. Loosen the set screw **(6)** at the rear of the tonearm, then insert the shaft of the counter balance in the opening provided for this purpose (Fig. 2). The triangular shaped notch of the shaft must point in downward direction. Pages 9 through 10 explain how to balance the tonearm and then apply stylus pressure and anti-skating.

The separate Technical Date sheet advises you on setting tracking pressure for the cartridge already inserted in the unit.

Later Transport

Important: the platter simply rests on the rotor of the electronic direct drive and must be removed prior to any transport. In addition, the chassis must be secured to the base with the transport safety screws. Loosen the screws by turning them counter clockwise, then pull them up and tighten again by continuing to turn them (Fig. C). The tonearm counter balance should be removed.

Be sure the tonearm is locked and the stylus guard flipped down.

Should shipping of your Dual become necessary, make sure that the packing is adequate. Use, if possible, the original packing material in which you received your unit.

Attention! After each transport or installation the unit must be started once with the tonearm in locked position for automatic adjustment of the shut-off mechanism. To initiate the automatic "start" or "stop" function press the start switch all the way in each direction. Upon release the switch returns immediately to its resting position.

Start and Operation

First select the correct platter speed, then unlock tonearm. If the cartridge has a stylus tip protector, move it upward.

1. **Automatic start**

Indexing is interlocked with the speed selector, so the tonearm will set down into the lead-in groove of 12" (30 cm) records when switched to 33 1/3 rpm, and into the lead-in groove of a 7" (17 cm) record when set to 45 rpm. To initiate "start" function, press the switch **(11)** all the way. The switch returns to its original position immediately after its release. The tonearm moves to the record, lowers slowly and sets the stylus gently in the lead-in groove of the record.

2. **Manual start**

a) Move cue control lever **(8)** to position ▼.

b) Move tonearm by hand over the desired point on the record.

c) Tape control lever to position ▼.

Attention!

With the cue control lever in position ▼ and automatic start, the tonearm moves to the setdown position. By tapping the control lever the tonearm will descend to the record.

The height of the stylus tip over the record when the tonearm is in the raised position by the cue-control can be varied about approx. 6 mm by turning the adjustment screw **(3)**.

3. **If a record is to be played repetitively or played once more from the start**

Move switch to „start".

4. **Interrupting play (Pause)**

Set the cueing lever to position ▼. When the cueing lever is returned to position ▼, playing is continued. The last few notes before the pause are repeated.

5. **Shut-off**

Move switch to position „stop".

The tonearm will return to its rest position and the unit will shut off automatically.

Note: For records with other diameters, such as 25 cm records, the unit is operated manually. See Section "2. Manual start".

After the record has been played, shut-off and tonearm return is automatic irrespective of having started the unit manually or automatically. The tonearm should then be locked and the stylus tip protector moved down again.

Balancing the Tonearm

Precise tonearm balance is most important for cartridges with low stylus pressure. Balancing need be done only once. We recommend, however, that you occasionally inspect the tonearm.

The pickup arm is correctly balanced if it remains in a horizontal position when released, i.e. if it does not rest against the lower or upper end stops and if it returns to a horizontal position if defleated vertically by a small distance.

Shifting the counterbalance **(4)** on its shaft balances the tonearm coarsely; turning the counterbalance weight balances the tonearm exactly.

1. With the pick-up arm still locked on the arm support, turn the turntable a few revolutions in a clockwise direction by hand.
2. Set the tracking force **(5)** and anti-skating **(7)** controls to "0", unlock the tonearm, and lift if from the tonearm rest.
3. If the tonearm does not come to rest horizontally, loosen setscrew **(6)** and slide the counterbalance with its shaft until an approximate balance is has been achieved.
   Then secure the shaft of the counterbalance by tightening the setscrew.
4. Now find the exact balance by turning the counterweight.
5. Set up the tracking force and antiskating adjustment.

Setting the Stylus Pressure

Each cartridge has an optimum stylus pressure. See instructions supplied with your cartridge.

Once the tonearm is balanced exactly, the stylus pressure is set to the recommended value for the cartridge by turning the stylus force scale **(5)**. The stylus pressure can be set to any value from 0 – 50 mN (0 - 5 g) whereby the figures on the scale are to be interpreted as follows.

1 = 10 mN ≙ 1 g
2 = 20 mN ≙ 2 g
3 = 30 mN ≙ 3 g

etc.

The unit is designed to operate with stylus pressures fom 5 mN (0.5 g).

Antiskating

The skating force which acts upon any pick-up arm causes one-sided wear on the needle and on the record and can cause distortion in the reproduction.

To compensate for skating force, a counterforce, precisely defined in weight and direction, must be applied to the tonearm. The anti-skating mechanism **(7)** of your turntable fulfills this requirement.
Separate calibrations are provided for the stylus types used almost exclusively today, according to the imprinted symbols:

O setting for conical stylus

○ setting for biradial (elliptical) styli

CD 4 setting for playing CD 4 records with special CD 4 cartridges.

The setting of anti-skating compensation corresponds to the setting of stylus pressure: Turn the anti-skating knob to the number on the appropriate scale which corresponds to the stylus pressure you have set. That is, for a stylus pressure of 15 mN (1.5 grams), set the anti-skating knob also at "1,5".
When playing records moistened with a cleaning agent, the skating force is reduced by approximately 30 %. In such cases we recommend a corresponding 30 % decrease in antiskating compensation.

Stylus

For above subject refer to "Notes on pick-up cartridge of your unit" attached to the Operating Instructions.
In normal use, every stylus is subject to wear and tear. We recommend that it be inspected occasionally, but certainly after aproximately 300 playing hours in case of diamond styli. Your Dual dealer will do this without charge. Worn or damaged (chipped) styli will grind the modulation out of records grooves and damage the records. In case of replacement, obtain only the stylus type recommend in the Technical Data for the cartridge. Imitations cause noticeable loss in sound quality and rapid record wear.
Please keep in mind that the stylus holder with the diamond tip is necessarily quite delicate in order to provide quality performance. It is, therefore, extremely sensitive to harsh handling, accidental touch, blows, etc. Take the cartridge in the holder to your Dual dealer for inspection of the stylus.

Pitch Control

Each of the two standard speeds (33 1/3 and 45 rpm) can be varied with the pitch control (Fig. 3).
The pitch control maintains the nominal speed and provides for individual control of tempi and pitch of reproduction, for example, when the pitch of recorded music is to match a live musical instrument, or when a record passage is to match the length of a motion picture scene.

The illuminated strobe mechanism can be used to adjust the exact speeds while a record is playing. When the turntable rotates at exact speed no movement of the bars is observed. If the bars appear to advance in the same direction as the turntable the speed is too high. If the bars appear to retreat, the speed is too low.

The platter

The effective rotating mass platter consists of two parts, the rotor of the electronically-regulated direct-drive motor and the aluminum die-cast platter with a total weight of 1.0 kg. The dynamically balanced platter rests directly on the rotor and is secured to it by gravity alone.

Important! Remove platter prior to each transport!

Adjustment of Tonearm indexing

If playing of a record is started automatically, the stylus is lowered automatically into the starter groove of the record.
If the stylus of another cartridge, installed later, sets down too far inside or outside the lead-in groove, adjustment can be made as follow:
Move the speed selector to "33". Removing the decorating strip (first lift it on the rear edge) will expose the control (Fig. 4) for tonearm indexing.
Place a 12" record on the platter and start the unit. If the stylus sets down too far inside or outside the center of the record, turn adjusting screw clockwise or counterclockwise, respectively.
Turn the adjusting screw clockwise or anticlockwise until the pickup needle is lowered accurately into the starter groove.

Service

All lubrication points are adequately supplied with oil prior to delivery to the customer. Under normal conditions, your Dual should function properly for many years; do not oil any part of your Dual yourself. Should your player ever require service, please take it to your Dual dealer, or ask him for the address of the nearest authorized Dual service station. Please make sure that only original Dual replacement parts are used.
Should shipping of your Dual become necessary, make sure that the packing is adequate.
Use, if possible, the original packing material in which your received your unit.

Electrical safety

This player meets international safety standards for radio and related equipment (IEC 65).

Technical Data

Current AC 50 to 60 Hz

Voltage supply
at play 12 – 13,5 V ~
at start > 10,5 V ~

Drive
electronically-regulated direct-drive system, Dual EDS 500

Power input
Motor at playing operation < 50 mW

Power consumption
at start approx. 300 mA
at play approx. 100 mA

Time from start to rated speed: approx. 2 s at 33 1/3 rpm

Platter non-magnetic, dynamically balanced, detachable 1.0 kg, 270 mm diameter

Platter speed
33 1/3 and 45 rpm, electronically adjustable

Pitch control
Separate for both speeds, each adjustable by means of variable reistor, with calibration scale; range of regulation: 10 %

Speed control (monitoring) with illuminated stroboscope for platter speeds 33 1/3 and 45 rpm, adjustable to 50 or 60 Hz.

Sensitivity of the illuminated strobe for 0.1 % speed deviation.
6 division markings per minute at 50 Hz,
7.2 division markings per minute at 60 Hz.

Total wow and flutter
according to DIN 45 507
(German Industry Standard) < ± 0.08 %
WRMS ± 0.045 %

Rumble (according to DIN 45 500)
Unweighted: > 42 dB
Weighted: > 63 dB

Tonearm
Torsion-resistant tubular aluminium tonearm in fourpoint gimbal

Tonearm Bearing Friction (related to stylus tip)
vertical < 0.08 mN (0.008 g)
horizontal < 0.16 mN (0.016 g)

Stylus Pressure from 0-50 mN (0 - 5 g) infinitely variable, operable from 5 mN (0.5 g) stylus pressure up

Cartridge Holder
Removable, accepting any cartridges with 1/2" mounting and a weight from 4.5 to 10 g (including mounting hardware)

Adjustable Overhang
5 mm

Cartridge
see separate data sheet